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HAND-HELD TELEPHONE WITH COMPUTER MODULE

This application is a continuation of PCT application no. PCT/DE96/01005 filed on Jun. 3, 1996, which designated the United States and on which priority is claimed under 35 U.S.C. § 120, the entire contents of which are hereby incorporated by reference.

FIELD OF THE INVENTION

The invention relates to a portable device that can be used as a personal computer and for telecommunication comprising a hand-held telephone and a personal computer.

Portable personal computer and telecommunication devices of this type are particularly used for mobile telecommunication, writing and transmitting telefax messages as well as for on-line information services and as mobile personal computers.

DESCRIPTION OF THE BACKGROUND ART

In general usage are portable mobile telephones (in German usually called "handy" because they can be operated with one hand) and a large number of small size devices as pocket calculators, data bases and electronic notepads which can be carried along for personal usage due to their very small dimensions. Personal computers with displays that produce texts or graphics are known in the size of laptops or notebooks. But even these still have a size of DIN A 4 (German standard paper size) and are rather heavy.

A similar, portable device that can be used as a personal computer and for telecommunication is known from the EP 0 472 361 B1. It comprises a personal computer member and a mobile telephone being integrated into one housing which also contains a keyboard member for operating both the computer and the mobile telephone. A lid which covers a display when it is closed is pivoted on the housing. The lid is shaped in such a way that in its open position it leaves accessible a part of the display and also at least some of the keys of the keyboard member so that the device can be used in its function as a mobile telephone. The microphone for the telephone member and the speaker are situated on one of the long sides of the housing.

The disadvantage of the above mentioned device described in the EP 0 472 361 B1 is that it can not be used in the same way as usual mobile telephones of the type of a hand-held telephone because the arrangement of the keys for operating the telephone as well as the arrangement of the microphone and the speaker are different in comparison with other mobile telephones. Particularly, it is not possible to operate the telephone member of the device with only one hand, as it is characteristic for mobile telephones of the type of a hand-held telephone, because in order to operate the telephone the device has to be turned at first by 90° with respect to its longitudinal axis and after that by 90° with respect to its transversal axis.

In respect of its functions this device can not be extended, and it is not possible to connect additional power modules to it that would provide for a longer run.

In the DE 41 08 169 A1 a telephone was published which represents a mobile communication device that can be operated as a mobile radio telephone in connection with a personal computer and data transfer.

Another device which can either be carried along or be installed in a vehicle consists of a computer with a keyboard and a send-receive unit for a radio telephone or a car

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telephone and comprises a flap, similar to that of a laptop, on the front part of which there is a display. On the back side of the flap there is a holder for a hand-held telephone which on one side juts out with respect to the flap. When the flap is closed it covers the computer keyboard and the hand-held telephone is accessible and can be taken off. The keys for the telephone and for operating the computer which are situated on the upper side of the telephone are accessible. If the flap is lifted and forms a specific angle with the rest of the housing the computer keyboard is accessible and the mouthpiece and earpiece of the telephone being fixed to the back side of the flap are in front of a person looking in the direction of the display. This way the sound waves can without hindrance communicate between the user and the earpiece and mouthpiece of the telephone.

The disadvantage of this solution is that it is not possible to use this device as a mobile telephone. It has from the beginning been developed as a device comprising two completely separate parts (a hand-held telephone and a laptop) being linked together. Also, as a result of its jutting out parts this device is highly sensitive to shock, especially in the case when it falls down.

SUMMARY OF THE INVENTION

The aim of the invention presented here is to offer a device that can be used as a personal computer and for telecommunication as well which is able to send, receipt, produce and process speech, data, texts and/or graphics. In other words, the invention tries to connect the functions of a mobile telephone with the functions of a personal computer within only one device. Also, it is intended that the present device can be extended by additional devices for the usage of additional functions.

This task is being solved by the invention of a portable device that can be used as a personal computer and for telecommunication.

As the computer member and the telecommunication member are intended to be two separate parts, it is possible to develop both members with their respective electronic modules separately or to use already existing modules, e. g. for the telecommunication member, after adjusting them only slightly. This means that the effort in respect of development and construction will be very much reduced. Another plus is that the user of the invented portable device can operate it in a very flexible way when using it as a facsimile, a modem, a telephone or a data processing machine or when making use of all possible combinations of its different functions. Also, the device is very easily and comfortably to handle.

The user can either operate the two members of the device separately or at the same time as for instance when writing and sending a facsimile message by the help of the respective data processing programme. On the other hand, it is always possible to use the telephone module when the device is in its closed position because the keys for the telecommunication unit are situated on the outer surface of the respective module. This means that the device according to the invention is as handy as a usual mobile phone and functions as a personal computer in connection with a telecommunication device.

The separation of the computer and the telecommunication member in different modules and the arrangement of the respective keyboards and displays allows a minimum of data lines connecting the personal computer with the telecommunication unit. Thus the constructional effort is reduced and the risk for damages and problems concerning the data